

IN THE CLAIMS

1. (Currently amended) A method for up-sampling a compressed bitstream, comprising:

partially decoding the compressed bitstream to produce a plurality of macroblocks, each macroblock having DCT coefficients according to a predetermined dimensionality of the macroblock; and

applying a plurality of DCT filters to the DCT coefficients of each macroblock to generate a plurality of up-sampled macroblocks for each macroblock, each up-sampled macroblock including up-sampled DCT coefficients, there being one up-sampled macroblock generated by each filter, each up-sampled macroblock having the predetermined dimensionality.

2. (Currently amended) The method of claim 1 wherein the macroblock and each up-sampled macroblock has 2^N ~~pixels~~ up-sampled DCT coefficients arranged in rows and columns, where N is the predetermined dimensionality.

3. (Currently amended) The method of claim 1 wherein further comprising:

applying two DCT filters to the rows of ~~pixels~~ DCT coefficients of each macroblock to generate two horizontally arranged up-sampled macroblocks; and

applying the two DCT filters to the columns of ~~pixels~~ the up-sampled DCT coefficients of each horizontally arranged up-sampled macroblock to generate two vertically arranged up-sampled blocks for each horizontally arranged up-sampled macroblock for a total of four up-sampled macroblocks.

4. (Currently amended) The method of claim 3 wherein ~~pixels~~ the up-sampled DCT coefficients of the up-sampled macroblocks are determined by matrix multiplications.
5. (Currently amended) The method of claim 4 wherein each filter is a form of a $k \times q$ matrix of filter taps, where k is ~~an index of an output pixel~~ a particular up-sampled DCT coefficient and q is ~~an index of an input pixel~~ a particular DCT coefficient.
6. (Currently amended) An apparatus for up-sampling a compressed bitstream, comprising:
- means for partially decoding the compressed bitstream to produce a plurality of macroblocks, each macroblock having DCT coefficients according to a predetermined dimensionality of the macroblock; and
 - means for applying a plurality of DCT filters to the DCT coefficients of each macroblock to generate a plurality of up-sampled macroblocks for each macroblock, each up-sampled macroblock including up-sampled DCT coefficients, there being one up-sampled macroblock generated by each filter, each up-sampled macroblock having the predetermined dimensionality.